

ABSTRACT

It is an object of the present invention to provide a composite material having low thermal expansivity, high thermal conductivity, and good plastic workability, which is applied to semiconductor devices and many other uses.

The composite material is composed of metal and inorganic particles having a smaller coefficient of thermal expansion than said metal. It is characterized in that said inorganic particles disperse in such a way that 95% or more of them (in terms of their area in cross-section) form aggregates of complex configuration joining together.

The composite material contains 20-80 vol% of copper oxide, with the remainder being copper. It has a coefficient of thermal expansion of 5×10^{-6} to $14 \times 10^{-6}/^{\circ}\text{C}$ and thermal conductivity of 30-325 W/m·K in the range of room temperature to 300°C. It is suitable for the radiator plate of semiconductor devices and the dielectric plate of electrostatic attractors.

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